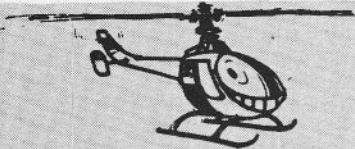


# HOVERING ABOUT



BY FAR AND AWAY the most frequent suggestion for this column is to include more on learning to fly. A lot has been written on this subject, some good, some bad, but finally it doesn't matter, you have to persist in the practical manner eventually and I'm sure there just isn't one easy way. As I have said before, if it was easy you wouldn't bother, and if you did, the interest wouldn't last.

Helicopters have a tremendous and lasting fascination and when you consider that the model can go on and on being used after repairs, is not as expensive as might first appear. Compare with the times a new fixed wing model is thrown away quite literally as a bag of crushed balsa.

Before the arguments and shouts of anguish start, let me give the reason for going off on that tack, it is simply that a couple of readers have come up with ideas, one cheap and the other expensive, both to help save you breaking your model. They have both been done before, but I think are still worthy of inclusion.

The first is by Mr. H. F. Hamilton of Billingshurst. The sketch (Fig. 1) shows his simple orientation trainer which he claims is as near the real thing as you can get in the long evenings at home. The mirror, together with electrics platform, rotates on a fixed steel rod. If you can keep the ball in the middle while the mirror unit is rotated 360° you can simulate the chopper doing its thing in the hover, he says, though personally I recommend keeping the helicopter facing away from you, and this device makes no provision for tail rotor simulation.

The second is an obvious one which I haven't heard of before, put forward by Michael Binns of Bourne End, Bucks. He relates he has a 'Heliboy' but it is as yet unflown because it would seem awfully expensive to repair so he bought an electric model in order to practice noiselessly and hopefully painlessly in the garden.

Michael says lift is marginal, but it does fly and he has tuned it with the 'Hovering About' string method and that's the clever bit. He is learning the controls and seeing reactions without the model rushing off in a spin, even if he does have to put up with cries of FIDO from his daughter!

Now the drawback of the electric model was its short duration on the flight pack bat-



Maurice Tate flew his venerable Graupner Bell 212 at the recent Plymouth helicopter meeting. You can't beat a good old 'un!

teries, or the ridiculous (for a learner) restraint of the ground battery umbilical. With the string it has a purpose, and it makes me recall hearing of a Honda starter motor powered '2c' some years ago. All the same, Michael is in for some excitement when he tries the 'Heliboy' on the loose.

\*The 'Hovering About' string method is a training system to get you over one stage of learning to fly a helicopter. Deemed very good by some and useless by others, it comprises flying the model on a sort of dog lead. Photo copy of the Feb. 1979 issue that it was fully described in, can be obtained from Jim Morley. SAE plus 10p stamp to RCM&E.

Quite by chance, when indulging my motoring interests by visiting the skidpan at Thruxton near Andover, I found right next door the Southern Helicopters Models unit run by John Heaton. Even though it was far from good flying weather his models were buzzing about overhead a surprising amount.

No wonder John is a force to be reckoned with at competitions, to work in the middle of a flying field must be an advantage. I was surprised to find that a large percentage of his sales are ready-built models, in fact he almost seems to specialise in these — but he favours the quickbuild jobs. Perhaps his biggest sales patch is that he can set it up and fly it for you on the premises.

## British R/C set for helicopters

It is nice to see a British radio manufacturer innovating and considering Helicopter use. Such is the case with Fleet Control Systems new 'Pro 7' outfit which has a pretty comprehensive modern specification, the great thing about it being not only plug-in frequency but mixer modules as well.

This gives you the opportunity to leave the set up for one model intact when flying another. Of course you would have to be careful because the servo reversing facility is

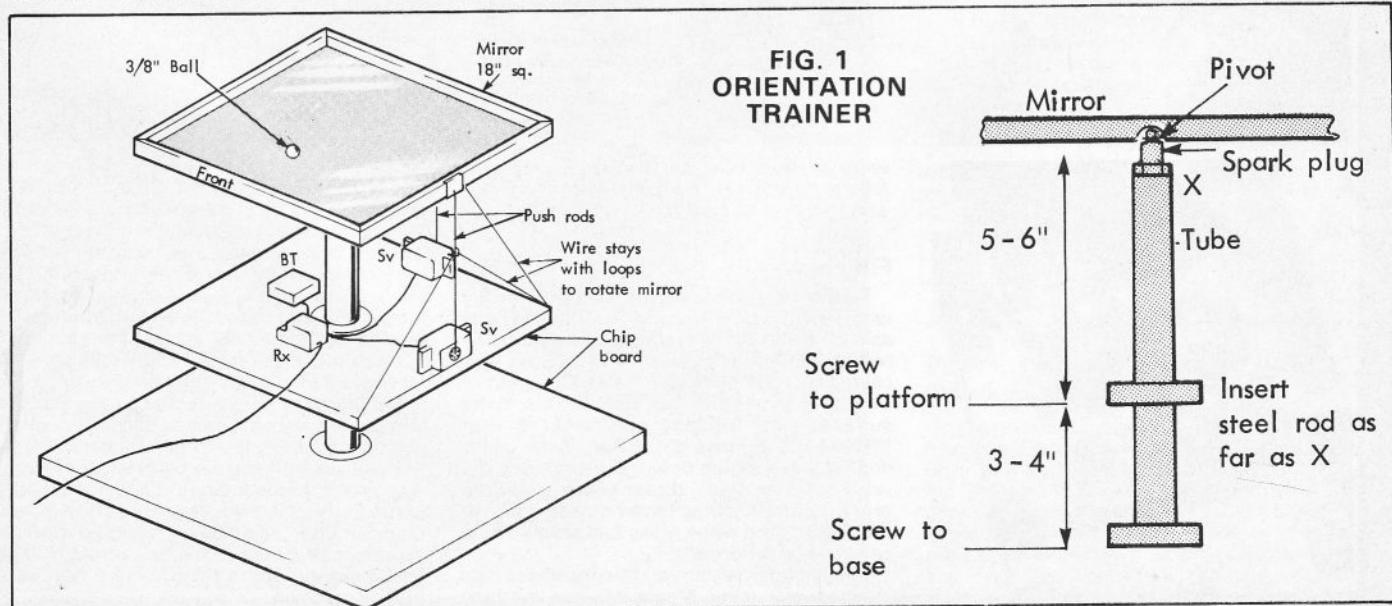


FIG. 1  
ORIENTATION  
TRAINER

# R/C HELICOPTER NEWS FROM JIM MORLEY



*Left: latest R/C outfit from long established U.K. manufacturers. Fleet Control Systems. Unit features plug-in transmitter modules and a built-in mixer system, plus many more features. More of this outfit in next month's RCM&E.*

at a separate position and the dual rate switches put in the right place. It almost looks as if by changing over two internal plugs the transmitter can be changed from one mode to the other, that is the throttle/collective on left or right stick to choice. I say 'almost' because of ratchets and spring centring on the sticks, but it can be done.

The refinement of the 'acceleration device' for varying the mixing with sudden movement is being considered, so is the facility to switch off the throttle servo, when separated from collective, so that autorotation tricks can be attempted. Having flown a *Fleet* outfit for some time, I look forward to trying this latest one.

## Overseas News

I see from the 'Model Aviation' magazine that they were pleased to have a better than usual entry at the U.S. Nationals held on Wright Field in 1980. It must be more than a coincidence that the same thing happened over here remember, and must prove an upsurge in the popularity of helicopters.

Another coincidence was the demise of the American association previous to our own BRCHA losing all its steam. Now Mike Mas, winner of their Nationals and early exponent of the art of inverted flying, has started a 'United Helicopter Association'. I don't know for certain, but it seems dues are \$8 (£3.20) per year, or more if you like (How many would?). Maybe it means to cover postage to

overseas of the planned bi-monthly newsletter. Anyway the address is: United Helicopter Association, C/o Mike Mas, PO Box 266, Miami, Florida 33197.

Another snippet from across the water is a \$10,000 prize called the Sikorsky Prize for the first manpowered helicopter to hover for one minute over a 10 metre square on the ground and reach a height of 3 metres sometime during the minute. Anyone wanting more info on that one write to: American Helicopter Society, 1325 18th Street, N.W., Washington DC 20036.

## Rotorcraft contest

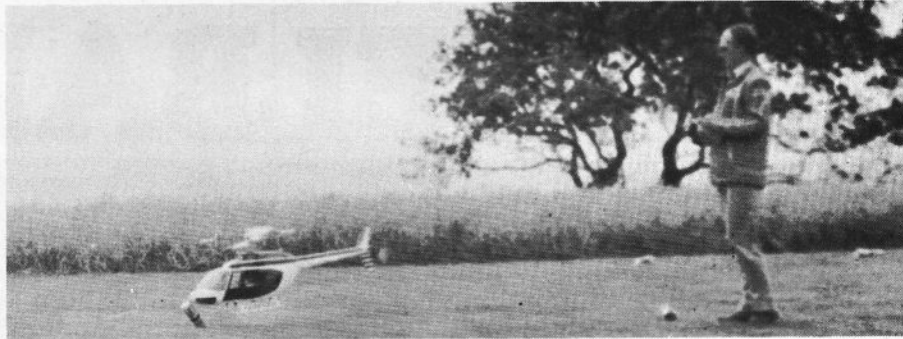
A competition nearer home, and if not more interesting, one certainly more readily

considered, is that organised by the Royal Aeronautical Society called the Mini Rotorcraft Competition. I believe this to be mentioned in RCM&E prior to this issue, but briefly the idea is to obtain maximum duration from an R/C helicopter, take-off at 5kg, above 10 metre square and 5 metres height. You have until July 1982 to prepare your model for the £1,000 prize, possibly an FAI record (I say possibly because your model doesn't have to comply with FAI specifications), or the £500 prize for the runner-up with the greatest ingenuity. Further information can be obtained from the Secretary (Mini Rotorcraft Competition), The Royal Aeronautical Society, 4 Hamilton Place, London W1V 0BQ.

Although I had heard mention of this competition, I am grateful to John Hardy at Bristol University for drawing my attention to it by writing to ask if I had any ideas on the subject.

My first thought was of a tandem rotor device (Chinook) with a 4-stroke engine, so that all the effort went into lift without waste on tail rotors or two-stroke inefficiency. I then guesstimated on the possible result and came up with about seven hours, it immediately became apparent that this wasn't really a design challenge but a human endurance feat. I now see that the entrant may have two helpers with the flying which solves that one to a degree, and changes the emphasis to one of controllability or a gamble on the weather in Yorkshire. A high efficiency device is not likely to stay in a 10 metre square in any sort of gust I'm afraid.

John Hendry talks about calculating first



*Above: Pat Dubock with his hybrid mechanics equipped Jet Ranger seen at Plymouth. Below: impressive array of choppers in the pound at Plymouth.*



the variation of efficiency of the rotor blades with their diameter and says this will involve taking into account induced, axial and rotational velocities, profile drag, possibly tip effects, and ultimately the weight of the blades. He then says he thinks the stability analysis to be a very complex matter. I'd go along with that, and possibly find a few more variables for the blade calculations.

It is worth remembering that the present recently attained duration record was achieved using a conventional helicopter, if that's what one up top with a little one sideways at the back makes it, and used a two-stroke 10cc motor to fly for 3 hours 35 minutes and 6 seconds. So what can be done to improve on that?

Probably a 4-stroke motor for a start, say about 1 BHP assuming a bigger than usual rotor diameter for that size engine to increase efficiency. The take-off weight is 5kg, so if you can save on the airframe you can carry a bit more fuel. Is there a super high energy fuel that would be considered safe by the organisers?



I wouldn't be surprised to see something like that win the prize, scoring on the grounds of availability of reliable and proven components with the stability and control problem sorted out. On the other hand my tandem rotor comment of all the effort going towards lift is very valid I feel, even if the airframe does weigh more. Perhaps contra rotating rotors would get round that, and of course there is the possibility of a very large rotor powered by small motors at the tips, though I would discount that on the grounds of practicality in control and response.

So what else is there? I think I have rambled on enough to fire a few discussions. It would be nice to have a few letters or are you going to keep your secrets and win? I hear from the States that somebody has put clinically controlled fins at the blade tips in order to get a sideways force from the rotor without tilting. Makes you think.



*Above: Andy Hopkins about to pick up a dummy load with his Jet Ranger.*

*Left: Warren Bailey also attempts the load-lifting exercise at Plymouth.*

*Right: Dave Nieman flew this interesting Hirobo Falcon 707 nicknamed the 'Flying Shovel'.*

